**Philosophy of Vocational Education Debate: How are AI, automation and digitalisation reshaping VET and workplace needs?**

On 13th May 2025, Edge hosted the latest in our series of debates on the philosophy of vocational education. The series has now run for almost a decade and on this occasion we turned attention to a theme long in the background of previous debates – emerging technologies. Chaired by Professor **Chris Winch**, we explored how rapid developments in AI, automation and digitalisation are reshaping work and what this means for VET in England.

**Our first of three provocations came from Professor Prue Huddleston (Emeritus Professor and former Director of the Centre for Education and Industry, Warwick University).** While acknowledging that new technologies have often emerged to reshape the labour market, her primary concern in this case was **the pace of current change**. Technologies like generative AI move fast. For the first time they are disrupting cognitive work, not just manual labour. What does this mean for skills development?

In the short term, around 11% of jobs – mostly routine, back-office roles or part-time work disproportionately held by women – face immediate disruption. Research from OECD adds further urgency, projecting that **28% of jobs are at high risk of automation**, specifically in roles that tend to be held by younger, low-skilled, male workers. As Prue noted, this creates a clear moral imperative to consider those not in employment, education or training (NEET). What happens when whole groups of people are pushed out of the labour market?

A bigger shift, however, is yet to come. As AI moves from surface-level automation deeper into organisational structures, the risk magnifies, with 59% of current tasks in the economy at risk from existing generative AI. This won’t just impact ‘routine’ jobs but white-collar work in areas like business, science, education and health. Finally, we must ask philosophical questions about **regulation and accountability**. When AI begins mediating decision-making and upturning social norms, we must ask: Who are the guardians of AI? Who decides what it is for and what its impact should be on our lives?

Narrowing in on jobs, Prue noted an **imperative to support displaced workers** into new roles. AI will generate new industries, products and services, and will constantly requires new skills, even as it renders others obsolete. The challenge, then, is how to equip people moving forward, through **reskilling, upskilling, and clear careers guidance**. AI could even support this effort, if used responsibly. Hollowing, letting tech firms dictate risks turning education into a screen-time optimisation game, rather than a space for genuine learning. As Prue succinctly put it: “Maximising engagement is not the same as maximising learning.”

Significant labour market disruption lies ahead – the IMF estimates that 60% of jobs in advanced economies are exposed to AI. So what’s the future for VET? The World Economic Forum’s 2025 outlook points not to shiny new skills, but ‘old chestnut’ **core skills: analytical and creative thinking, motivation, self-awareness, cognitive self-efficacy and interpersonal skills**. Citing the Centre for Economic Performance, Prue suggested we must also develop workers’ **confidence and criticality in using these new technologies**, helping them to spot misinformation and potential misuse, whether around examinations and assessment or more widely.

Ultimately, the tech conversation must not eclipse the human one. Research from Oxford shows that people now spend on average 18 hours a day at home, with 25% of the global workforce working remotely. This risks feeding isolation, a loss of belonging and even identity. In our rush to embrace AI, are we engineering our own obsolescence?

**The second provocation came from Debra Gray MBE (Principal and CEO, Hull College). She opened with a stark reminder that for VET providers, the future of technology isn’t down the line, it’s already here.** Hull serves the 4th most deprived local authority area in England; it faces additional risks from job automation and climate change. Hull College is proactively engaging with emerging tech, they’ve trained over 200 staff in AI, won 34 awards on green skills and artificial intelligence, and helped more than 300 businesses upskill through their AI Academy. Yet, while Hull College is taking the initiative, for many businesses (and some VET providers) **technological change is often still considered abstract**. How do we rewire the system to make adaptation to new tech normal rather than niche?

Debs argued that, for too long, The government has confused employer responsiveness with being employer led, she argued that **VET should be employer-*informed* not employer-*led****.* We must stop treating vocational education as a commodity pipeline and start treating learners as complex individuals with agency. VET colleges in England primarily work with SME’s and micro-businesses, with little capacity to predict future skills. They want to inform on skills, but want VET providers to lead.

Debs also contrasted Government’s ‘employer-led’ rhetoric with Hull’s attempt at balancing commercial needs with social mobility. Yes, the college trains wind technicians and retrofitters. However, they also use AI with adult ESOL learners, including many refugees, to help them tell their stories and allow them to build a new life. Allowing an employer-led curriculum to rule risks isolating marginalised learners like these, whose **pathways into the labour market are not always linear**.

Drawing on centuries of historical examples, from medieval guilds to the Industrial Revolution, Debs pointed out that skills gaps are not new. The modern problem is treating VET as a quick productivity fix. Governments, driven by electoral cycles, tinker with reforms and new measures, but as ever in education, what gets measured is what gets done. Skills take longer to embed, and they require systemic reform over time.

For Debs, **policy inertia is a bigger threat than AI to innovation in VET**. FE Colleges are already using AI, VR and automation. But funding, regulation, and policy focuses on standardisation. There is no ring-fenced funding for true innovation or for staff CPD. Instead, leaders sometimes feel they need to choose between playing it safe for regulators, or risking being penalised for innovation.

In short, **you cannot transform VET without transforming the people who teach it.** Adopting tech shouldn’t only be operational but also relational. But without national digital entitlement for FE staff, or CPD time in contracts, this will not happen. A future-ready workplace needs future-ready educators. Yet, according to Jisc, nationally, only 52% of FE staff feel confident using emerging tech, but 85% want to learn more, the demand is there.

VET needs to be reimagined, not as a micro-managed, quick-fix for a broken economic model, but as a bold, public-facing good that is committed to serving communities. This needs genuine policy leadership that is brave enough to trust the sector to know what it is doing.

**The third and final provocation** came from **Steve Jones** (Connected Curriculum Lead, Siemens). He focused on **the difference between innovation in academia and innovation in industry**. He started by paying tribute to the UK’s world-class educational institutions, both in further and higher education, doing groundbreaking work developing intellectual property and industrial and scientific theory. By applying a laser focus on different aspects of technological advancement, researchers in the UK help to move us forward in numerous industrial fields.

Steve contrasted this, however, with industry. Their approach is less about pushing theory forward and more about practical and commercial application. While he argued industry will never match academia’s depth of understanding, he noted that it doesn’t need to – industry only needs to understand the surface level and commercial constraints that impact getting the job done. Rather than requiring detailed theory behind the practice, it’s about using tools and techniques to meet a particular demand.

Having **a practical focus drives industry innovation** **in how new technology is applied**. Steve argued that this creates two parallel but divergent worlds: academia (which works on discrete, isolated solutions) and industry (which integrates these digital solutions to link design, manufacturing, and supply processes).

This digitalisation, Steve argued, is industry’s key innovation. For Steve, **digitalisation is critical to the rapid rise of AI and its integration into industrial processes**. For instance, Siemens is investing heavily in AI, embedding AI into product design and manufacturing operations. He highlighted the company’s recent $10 billion acquisition of an AI company, which signals the company’s commitment to investing a technology that is sees as central to its future operations.

While these developments can seem exciting they come with challenges. Preparing learners for an AI-driven industrial landscape means bridging the gap between theory and practice. Where possible, VET curriculums must evolve to equip learners with both. If it fails to do so, learners risk being caught between two worlds.

**Breakout and discussion sessions**

Following these provocations, we split into breakout sessions, before reconverging to discuss key themes. From the mechanisation of agriculture to the rise of the internet, humanity has lived through cycles of technological disruption over and again. Each time, we face predictions of mass unemployment and social upheaval. The difference this time is speed. As many contributors observed, the **exponential acceleration** **of AI** means changes are unfolding at a pace we cannot easily digest. This is not a gentle step change, nor will it wait for policy and pedagogy to catch up. The result is a growing sense of unease, even helplessness. One speaker used the metaphor of burning toast – you smell it and see it happening, but don’t know quite what to do about it.

This led us to the question of **agency**. Can our systems – education, infrastructure, policymaking – equip people to adapt to change, whether in the labour market or in life? Or are we simply watching the train speed by with no chance of boarding? One practical concern was the weakening of national information, advice, and guidance systems just at a time when they are most needed. With job markets evolving at pace, how can we help people redirect their careers or to retrain for emerging roles?

Amid all the turbulence there is, at least, a flicker of hope – **uniquely human skills** are becoming evermore valuable. Creativity, judgement, empathy, collaboration, and critical thinking have long been held high as core skills for employment. However, the emphasis is now growing as they become among the few skills that cannot be automated. While this has implications for the labour market, it also has implications for humanity. Imagine a society in which education actively develops skills like empathy and creativity – it could be transformational for human progress. But first we must find a way to teach these skills. Unfortunately, rigid regulation, accountability measures and narrow assessment create friction for innovation in VET. The rhetoric of AI-readiness is not matched by action – Ofsted and Ofqual still set the tone for what ‘counts’ in learning, and it isn’t usually adaptability.

There was also a strong sense that **VET and industry often remain out of sync**. While industry moves fast to adopt and integrate AI, education is constrained. Industry seeks applied, efficient problem-solvers; education is typically forced to deliver discrete knowledge in siloes. The result is a tension between the skills learners are gaining and what that actually need.

Another area briefly touched on was the **sustainability of** **AI**. It is hugely energy intensive. Can we square its growth with our net zero commitments? Despite mixed views on this, it was generally accepted that AI is here to stay. Steve Jones even suggested that despite its energy consumption, if managed well, AI has potential to speed up design cycles and reduce waste. But concerns remain about the environmental cost of training AI models, as well as the unequal global distribution of its benefits.

Ultimately, the question of technology and AI in VET comes down to how we ensure that adaptability becomes an embedded trait within VET, and how we ensure that transformation remains ethical and equitable. Key to achieving these goals is the need to reframe AI as a force ‘out there’ to one that is shaped **by human values**. This starts by embedding individual agency and building criticality at every level of education and society.

To watch the full discussion, a recording of the debate is available here.